

DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch

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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 1.28**WELDING INSPECTION REPORT****Resident Engineer:**Siegenthaler, Peter**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-026050**Date Inspected:** 04-Aug-2011**Project Name:** SAS Superstructure**OSM Arrival Time:** 700**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1730**Contractor:** American Bridge/Fluor Enterprises, a JV**Location:** Job Site**CWI Name:** See Below**CWI Present:** Yes No**Inspected CWI report:** Yes No N/A**Rod Oven in Use:** Yes No N/A**Electrode to specification:** Yes No N/A**Weld Procedures Followed:** Yes No N/A**Qualified Welders:** Yes No N/A**Verified Joint Fit-up:** Yes No N/A**Approved Drawings:** Yes No N/A**Approved WPS:** Yes No N/A**Delayed / Cancelled:** Yes No N/A**Bridge No:** 34-0006**Component:** Orthotropic Box Girder & Tower**Summary of Items Observed:**

At the start of the shift the Quality Assurance Inspector (QAI) traveled to the project site and observed the work and the inspection performed by American Bridge/Fluor Enterprises (AB/F) personnel. The inspection was performed on the various field fit-up of weld joints and the Complete Joint Penetration (CJP). The welding was performed utilizing the Shielded Metal Arc Welding (SMAW) and the Flux Cored Arc Welding (FCAW-G) processes.

A). OBG E11/E12

The QAI observed the continued back gouging on the "B" face of the single-v-groove weld identified as Weld Number (WN): 10E-11E-D. This operation was performed by the welding personnel, Fred Kaddu, utilizing the plasma arc cutting method.

B). OBG W10/W11

The QAI observed the continued CJP welding of the side plate field splice identified as 10W-11W-D utilizing the semi-automatic FCAW-G welding process as per the WPS ABF-WPS-D15-3110-4 Rev. 0. The welding was performed by the welding operator Wai Kitlai ID-2953 and the inspection was performed by the QC inspector William Sherwood utilizing the Welding Procedure Specification (WPS) as a reference during the monitoring of the welding and verifying the welding parameters. The welding was performed in the overhead (4G) position with the work placed in a fixed position. The welding appeared to comply with the contract documents.

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C). OBG W11/W12

The QAI observed the continued CJP welding of the side plate field splice identified as 11W-12W-C utilizing the semi-automatic FCAW-G welding process as per the WPS ABF-WPS-D15-3042B-1 Rev. 0. The welding was performed by the welding operator James Zhen ID-6001 and the inspection was performed by the QC inspector Pat Swain utilizing the Welding Procedure Specification (WPS) as a reference during the monitoring of the welding and verifying the welding parameters. The welding was performed in the overhead (4G) position with the work placed in a fixed position at an approximate 22 degree incline. The welding appeared to comply with the contract documents.

D). Lifting Lug Holes

The QAI observed the CJP welding of the lifting lug holes located on the east Orthotropic Box Girders (OBG) and identified as WN: 10E-PP92-E4-W1. The welding was performed by Mike Jiminez ID-4671 utilizing the WPS identified as ABF-WPS-D15-1050A-CU, Rev. 0. The QAI also observed the QC inspector perform the visual inspection and verify the welding parameters during the production welding utilizing the WPS as a reference. The inspection performed by Fred Von Hoff appeared to comply with the contract specifications. The welding of the lifting lug holes was not completed during this scheduled shift.

E). Tower Shear Plates

The Request for Weld Repair Approval identified with the Weld Repair Report No.: 201108-001 was approved on this date by Structures Representative Douglas Wright in regards to base metal repair located above the ESW weld identified as WN: E-042 at the weld joint "K".

Prior to the repair welding the final dimensions of the excavation was performed by the QC inspector Steve McConnell and was observed and verified by the QAI as follows; 30 mm wide x 195 mm long x 25 mm deep. The excavation and welding was performed by Richard Garcia ID-5892 utilizing the SMAW process as per the repair procedure identified as ABF-WPS-D15-1000 Repair, Rev. 2. The QC inspector also used the WPS to monitor the welding and to verify the welding parameters. The welding was performed in the horizontal (2G) position with work placed in an approximate vertical plane with the groove approximately horizontal. The welding parameters were verified as 130 amps and the minimum preheat temperature of 140 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius appeared to comply with WPS.

Later in the shift, at random intervals, the QAI observed the QC inspector monitoring the welding operation. The welding was completed during this shift and appeared to comply with the contract specifications.

The QAI also observed the Ultrasonic Testing (UT) of the ESW butt joints identified as WN: E-043 and WN: N-043 located at joints "Q" and "P" accordingly. The testing was performed by the QC technician Steve McConnell utilizing a G.E./Krautkramer USM 35X. The examination was conducted utilizing UT Procedure identified as SE-UT-D1.5-CT-108 Rev.4 and the applicable contract documents. The QC technician performed the required longitudinal wave technique, utilizing a 1.0" diameter transducer, to perform the examination for base metal soundness and the shear wave technique for the examination of weld soundness which was performed utilizing a 16mm x 19mm rectangular transducer. At the conclusion of the testing both welds no rejectable

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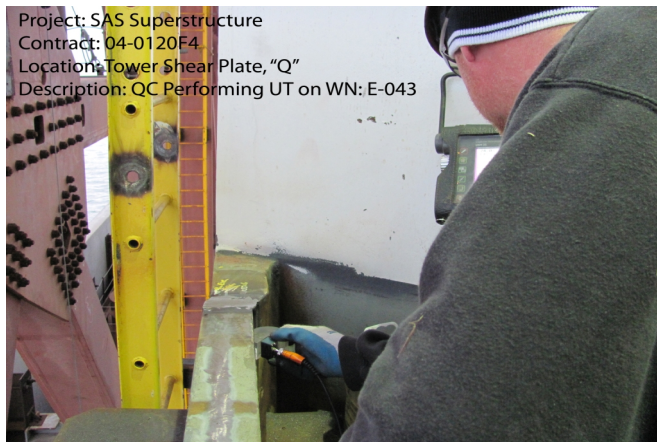
indications were noted by the QC technician. Note: In regards to the weld identified as WN: E-043 located at joint "Q", the QC technician did find one indication that was not rejectable but had an length in excess of 50 mm and will be radiographed at a later date. This indication was also verified by the QA inspector. The testing performed was for 300 mm starting form the top of the shear plate. The QAI also verified the testing of the ESW and concurs with the QC inspector. For location and additional information see the TL-6027 generated on this date.

This QA Inspector also performed a daily review of field inspection reports and update of the field document control tracking records regarding the Orthotropic Box Girders, Longitudinal and Transverse "A" Deck Stiffeners and Deck Access Holes.

QA Summary

The welding was performed in the flat and horizontal positions utilizing the E71T-1, identified as an H8 electrode designator consumable and E7018, identified as an H4 electrode. The 3.2 mm H4 electrodes were stored in electrically heated, thermostatically controlled oven after the removal from the sealed containers. The exposure limits of the electrodes appeared to comply with the minimum storage oven temperature of 120 degrees Celsius as per the contract documents. The welding parameters and surface temperatures were verified by the QC inspector's utilizing a Fluke 337 clamp meter to measure the electrical welding parameters and Tempil Heat Indicators for verifying the preheat and interpass temperatures. At the time of the observation no issues were noted by the QAI.

The digital photographs below illustrate some of the work observed during this scheduled work date.



Summary of Conversations:

There were general conversations with Quality Control Lead Inspector, Bonifacio Daquinag, Jr., at the start of the shift regarding the location of welding, inspection and N.D.E. testing personnel scheduled for this shift.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Nina Choy (510) 385-5910, who represents the Office of Structural Materials for your project.

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Inspected By: Reyes,Danny

Quality Assurance Inspector

Reviewed By: Levell,Bill

QA Reviewer